

arboretum—accomplished just before he retired from public life, was part of a scheme (perhaps chimerical) he encouraged with the view of establishing a School of Forestry in Edinburgh—a scheme now receiving some attention in Scotland.

Ready and rapid with his pen, Balfour's contributions to botanical and other literature are very numerous. Besides contributing to several Encyclopædias, he was for many years one of the editors of the *Annals of Natural History* and of the *Edinburgh New Philosophical Journal*. Of independent works, his text-books, to which we have already alluded, were very popular in their day, and are now valuable for reference, and he published works on Botany and Religion, Plants of the Bible, &c.

We should fail to give an adequate idea of the veteran Professor were we not to allude to that which gave a character to all he did—his religion. To him all nature was a symbol. He was one of that band of which Faraday, Clerk Maxwell, Greville, Wm. Allen Miller, and others were in the van, who "recognised the harmony between the word and the works of God," and who saw "in the objects of nature around indubitable evidences of a great designing mind."

By those who knew him—and his was a wide circle of friends—he will be remembered as a genial companion with the best attributes of humanity, and his name will always remain inseparably linked with the progress of botany in Scotland during this century, and as that of one of the eminent teachers in the University and city to which he belonged.

CAPTAIN HOFFMEYER

IN the early death of Niels Hoffmeyer, which occurred at Copenhagen on the 16th inst., modern meteorology has lost one of its most diligent and successful students, and one whose place it will be hard to fill.

Like more than one of our own physicists, Hoffmeyer was an artillery officer, and had attained the rank of captain in the service. At the close of the Prussian war he had fallen into bad health, and accordingly, on the reduction of the Danish army which then ensued, his name was placed on the retired list, and he was for a time unoccupied.

The Danish Meteorological Institute was organised in 1872, and Hoffmeyer was nominated its first director. There could scarcely have been a more fortunate appointment, for Hoffmeyer was gifted not only with unusual energy, but also with a very pleasant manner, so that he made friends for the new office and for its work wherever he went. He will best be known by his Atlas. He undertook to prepare daily weather-maps of the Atlantic—in great measure at his own expense—and he actually published them for a period of three and a quarter years, from September, 1873, to November, 1876. It is only a few months ago that he announced his intention to resume the work in combination with Dr. Neumayer, of the Deutsche Seewarte at Hamburg.

The most important results which Hoffmeyer had deduced from his own maps were contained in his pamphlet, "Étude sur les Tempêtes de l'Atlantique Septentrional, et Projet d'un Service Télégraphique International Relatif à cet Océan," Copenhagen, 1880; and up to the very last he never ceased to use his utmost efforts for the establishment of a meteorological telegraphic service with America, *viâ* the Faroes and Iceland.

While Hoffmeyer's chief work was in the domain of synoptic meteorology, he by no means disregarded climatology, and the service which the Danish Office has rendered to that science by the maintenance of stations in Iceland and Greenland has been very material.

When Capt. Hoffmeyer was in London last summer as Danish Commissioner to the Fisheries Exhibition, he was complaining of great weakness of the heart. During

December he was laid by for some time, but he had somewhat recovered, when he was seized last week with rheumatic fever, to which he soon fell a victim. He leaves a widow, but no children. He was an Honorary Member of the Royal Meteorological Society (London). He had been one of the secretaries of the Meteorological Congress at Rome, 1879, and of the Conference on Maritime Meteorology in London, 1874, but his chief official service of this nature was as Secretary to the International Polar Commission, where his loss, coming after that of Weyprecht, will be severely felt.

NOTES

THE Council of the Royal Society of Edinburgh has awarded the Keith Prize for the biennial period 1881-83 to Mr. Thomas Muir for his researches into the theory of determinants and continued fractions, the most recent instalment of results obtained by him being in a paper on permanent symmetric functions. Also the Macdougall-Brisbane Prize for the period 1880-82 to Prof. James Geikie for his contributions to the geology of the north-west of Europe, including his paper on the geology of the Faröes, published in the *Transactions of the Society*, 1880-81. And the Neill Prize for the triennial period 1880-83 to Prof. Herdman for his papers in the *Proceedings and Transactions on the Tunicata*.

WE learn from the *Standard* that the Royal Astronomical Society has awarded Mr. Ainslie Common its gold medal for his photographs of celestial bodies. This high award has, it is believed, been mainly bestowed on account of the magnificent photograph he has succeeded in taking of the great nebula in Orion, of which we gave an illustration in a recent number.

WE regret to learn of the death of M. T. du Moncel, editor of *La Lumière Électrique*, and author of numerous works in theoretical and practical electricity.

THE needs of the higher education of women in London are gradually being met in the manner that has been found so satisfactory at Oxford and Cambridge, where women students have long enjoyed the advantages of collegiate life. On Monday, February 11, there was a gathering of many of the most influential friends of the movement to inspect an important extension of the College Hall of Residence established at Byng Place, Gordon Square, in October 1882. The success which attended the first development of the scheme, and the growing demand on the part of students for admission, has encouraged the committee to provide additional accommodation by adapting the adjoining house, No. 2, Byng Place. With the new extension they look forward to a yearly surplus instead of a deficit. With the power of accommodating thirteen extra students the receipts would be increased by 876*l.* for the short session, and there would not be a proportionate increase in the expenditure. The advantage of holding the two houses is therefore evident. The second house was opened at the commencement of the current term, and there are now seventeen students in residence. Of this number two are pursuing the course of instruction provided at University College for the B.A. degree, two that for the matriculation examination of the London University, and another, a foreign lady, is a student of English literature at the same college; another student is preparing for the examination of the Pharmaceutical Society. Four ladies are students of the London School of Medicine for Women, and preparing for the M.B. degree (Lond.), and the remainder are studying art at the Slade School and elsewhere. The first student of the Hall who went up for the examination for the B.A. degree passed successfully last October, and has now an appointment as teacher at a school in York. The expenses for board and residence vary, according to the size and position of the room occupied, from 51 to 75 guineas for the

University College session of about thirty-three weeks. Even these fees, moderate as they are, are beyond the means of a large number of students, so that the committee, without such assistance as would be afforded by exhibitions, are unable to extend to them the advantages of the Hall. Besides help in this direction a need is felt for a reference library, as the books necessary for many of the courses at University College and the School of Medicine are numerous and costly. A special fund has been started for this purpose, and it is hoped that further subscriptions may be obtained. It is worth mention that the committee have recognised a principle which, so far as we know, has never been adopted in institutions of this kind. We refer to the representation of students on the governing body. This liberal measure, which invites the co-operation of students and gives them a means for the legitimate expression of opinion, will enable the students in residence to have a member elected annually as their representative on the committee. It is hoped that the benefit of this may be felt in strengthening the bond of a common interest. We have not touched on many of the advantages of the Hall which are felt by those who know the difficulties incident on a student's life in lodgings, as they were dwelt upon when we recorded in this journal the commencement of the scheme in the winter of 1882. It is therefore only necessary to state that the Hall in its enlarged scale offers the same comfortable and well adapted academic residence as that originally provided, and that under Miss Grove, the able principal, the high tone which has marked the institution from the beginning is still maintained. When we point out that the scheme has received the support of the late and present Presidents of the Royal Society, the late Sir William Siemens, Sir John Lubbock, M.P., Mr. Samuelson, M.P., Dr. Gladstone, Prof. Carey Foster, and many others, we have said enough to commend it to all our readers. In the nature of things Science and Art, as well as Literature, will gain by this and similar attempts to put the higher education on a more satisfactory basis.

DR. REUSCH has communicated to *Nature* the result of his analysis of a portion of volcanic ash from the Krakatoa eruption, given him by Prof. Kjerulf, who had received it direct from Batavia. He finds the principal constituents of the ash to be ordinary pumice-stone, some fragments of which are more than 1 mm. in length, while others are reduced to a condition of colourless or slightly brownish vitreous pumice-powder. Inter-mixed in the general mass are fragments of larger crystals of feldspar (Plagioklas) and of some rhomboidal mineral of the nature of augite.

At a meeting of the Norfolk and Norwich Naturalists' Society on the 29th ult., an account was read from the *Perth Enquirer* of a volcanic eruption in Western Australia, contributed by a highly respected settler who had lived in that district some years. The phenomenon he describes was witnessed by him on the same day as that on which the calamity occurred in the Sunda Straits, although he was in total ignorance of that disturbance at the time. He writes:—"I was travelling inland with a flock of sheep, when late in the afternoon of Saturday, August 25, to my profound astonishment, a shower of fine ashes began to rain upon me and my party. The fall of the ashes commenced just about sunset, and the shower, which was at first but very slight, soon became thicker, until it resulted in a steady and heavy rain of light calcined fragments. After the sun set I noticed a bright ruddy glare on the horizon towards the north-east; this was at first only just perceptible, but as the time wore on it increased in both brilliancy and extent. The glare was not at all diffused, and it was of such a nature that it was impossible to mistake it for a display of the *Aurora Australis*. On the contrary, I could easily see that the source of the glare was strictly circumscribed,

or, in other words, it was confined to one spot; but as it increased in intensity the fervid glow mounted higher and higher in the heavens. So far as I could roughly calculate, the source of this extraordinary illumination must have been situated about 400 miles inland to the north-east of Roeburne. The showers of ashes ceased just after sunset, and I observed that the steady glare was still to be seen until before sunrise, but as the sun rose the lurid appearance of that portion of the horizon gradually decreased, and at last quite died away when the orb of day made its appearance. Fortunately, I afterwards had an opportunity of questioning some natives who had recently come from that part of the country, and they described the cause of the glare plainly enough. 'Big mountain burn up big,' they said; and then they added, 'He big one sick. Throw him up red stuff, it run down side and burn grass and trees. We frightened and run away, and fire-sticks (i.e. I presume the ashes) fall on us. Two, three days after we go look again; mountain only smoke then, and red sick turned black and hard, just like stone.' A plainer description of a volcano in a state of eruption could hardly be given by uncivilised beings; and I am therefore compelled to conclude that I was the far-distant witness of the first eruption of a volcano that has occurred in Australia within the memory of living men."

NINE lectures on the principal types of the human species will be delivered in the theatre of the Royal College of Surgeons, on Mondays, Wednesdays, and Fridays, at 4 o'clock, commencing on Monday, February 25, by Prof. W. H. Flower, LL.D., F.R.S., as follows:—Introduction, anthropology and ethnology; Physical or zoological anthropology; Nature and extent of the differences between the permanent types or races of men, illustrated by comparison between the European and the Tasmanian native; Methods of estimating the differential characters of the various modifications of the human species, elements of craniometry; Characteristics of the black, or frizzly-haired races, in their typical and modified forms; Characteristics of the yellow, or so-called Mongolian races; Characteristics of the white, or so-called Caucasian races; Races not readily grouped under either of the above principal types; Classification of the races of the human species. The course will conclude on Friday, March 14.

WE regret to learn that the Council of the Geographical Society have decided to discontinue the examinations which they have held for a number of years for pupils attending our public schools. The number of candidates has been diminishing every year. The Council are, we understand, considering a scheme for establishing a Professorship of Geography; but, while we recognise their anxiety to promote in this way their branch of science, we confess that we are doubtful if this is the best means of attaining the object. The sphere of geography is at present quite undefined; in Germany it embraces something of nearly every science, while in this country it is often regarded as almost synonymous with topography.

PREPARATIONS for the holding of the International Health Exhibition are proceeding rapidly. The General Committee now numbers nearly 400 members, and from these 17 Sub-Committees have been formed. These have all been doing valuable work in advising the Executive Council as to the nature of objects which it is desirable should be fully illustrated, in obtaining the co-operation of many persons of eminence in the various branches on which the Exhibition will treat, and in supervising the applications for space. The allotment of space, which has been largely applied for, is being rapidly proceeded with, and applicants will soon be informed of the decision of the Executive Council with regard to their applications. In response to a request made by His Royal Highness the Prince of Wales, President of the Exhibition, the eight Water Companies of London

have resolved to exhibit, in a pavilion which is being erected for them, their appliances for the supply, filtration, &c., of water, together with diagrams showing the various processes and localities; and a powerful Sub-Committee, under the active chairmanship of Col. Sir Francis Bolton, has been formed to carry out this branch of the Exhibition. The Water Companies have also determined to put up in the grounds a large fountain, which will be illuminated at night by electricity. It is impossible, as yet, to give any definite information with regard to foreign countries; but, so far as one can judge at present, Belgium, China, and India will be the best represented.

ACCORDING to information received in St. Petersburg everything is well with the Russian Meteorological Expedition wintering at Cape Sagasta at the mouth of the Lena. Every preparation was made last autumn for the wintering—the second one—the Governor of Yakutsk having provisioned the station most plentifully. During the previous winter—1882–83—the cold was rarely before January 40° C. below zero, but in January and February the thermometer frequently fell lower. The greatest cold occurred on February 9, when it fell to 52·3° C. below zero. In March even the cold was 40° in the night and 19° in the day. One of the members of the expedition, Dr. Bunge, has forwarded to St. Petersburg some valuable reports on the fauna in and about the mouth of the Lena.

THE Academy of Sciences has received a requisition from M. Ferry to appoint three delegates to the International Commission which is to meet at Washington on October 1 next in order to determine the choice of a first meridian. It is the first time that places have been offered to the Academy on a diplomatic commission.

PROF. HULL, who has returned with his party, brings with him, it is stated, materials for the construction of a geological map of the Holy Land very much in advance of anything which could hitherto be attempted. He is reported to have traced the ancient margin of the Gulfs of Suez and Akaba to a height of 200 feet above their present level, so that, according to Prof. Hull, the whole country has been submerged to that extent, and has been gradually rising. As one result of this rise, the Professor is of opinion that at the time of the Exodus there was a continuous connection of the Mediterranean and the Red Sea. As regards the Dead Sea, Prof. Hull believes he has discovered that it formerly stood at an elevation of 1400 feet above its present level—that is to say, 150 feet above the level of the Mediterranean. The history of this gradual lowering of the waters will form a special feature in Prof. Hull's forthcoming report. He believes he has also found evidences of a chain of ancient lakes in the Sinaitic district, and of another chain in the centre of the Wady Arabah, not far from the watershed. The great line of the depression of the Wady Arabah and the Jordan Valley has been traced to a distance of more than a hundred miles. The materials for working out a complete theory of the origin of this remarkable depression are stated to be now available. They are bound to differ in many details from the one furnished by Lortet, whose patient observations have hitherto been received with respect. The terraces of the Jordan have been examined, the most important one being 600 feet above the present surface of the Dead Sea. The relation of the terraces to the surrounding hills and valleys shows, according to Prof. Hull, that these features had already been formed before the waters had reached their former level. Sections have been carried east and west across the Arabah and Jordan Valley. Two traverses of Palestine have also been made from the Mediterranean to the Jordan. Prof. Hull has in hand, besides his scientific report, a popular account of his journey, which will first appear in the *Transactions* of the

society. Captain Kitchener's map-work is in the hands of Mr. Armstrong, who was for many years on the survey of Western Palestine. He has himself been ordered on service up the Nile; but it is hoped that his absence will not retard the publication of a new and very interesting piece of geographical work.

WE have received the following communication from the Royal Victoria Coffee Hall:—"By the kindness of the Gilchrist Trustees the Committee of the Royal Victoria Coffee Hall, Waterloo Road, have been enabled to arrange another series of Penny Science Lectures on Tuesday evenings, as follows:—March 4, Prof. H. G. Seeley, F.R.S., on Ancient English Dragons; 11, Wm. Lant Carpenter, B.Sc., F.C.S., on Air, and why we Breathe (with experiments); 18, P. H. Carpenter, M.A., D.Sc., on Fossils, and what they teach us; 25, Edward Clodd, on the Working-Man 100,000 Years Ago. April 1, E. B. Knobel, F.R.A.S., F.G.S., Hon. Sec. R.A.S., on the Planets; 8, J. W. Groves, on the Dangers and Safeguards of Beauty in Animals. All the lectures will be illustrated by means of the oxyhydrogen lantern. If any of your readers can distribute handbills among working people, or cause window bills to be displayed in suitable situations, we shall be grateful for their help, and beg they will communicate with the Honorary Secretary. The difficulty of making anything known in this crowded, busy London is acknowledged on all hands, but it is believed that if these lectures could be made known in the right quarters, people would come long distances to hear them."

It appears from the report of Drs. Brouardel, Second, Descout, and Magnin, who conducted the autopsy of Tourguenief, that the brain of this eminent Russian author weighed 2012 grms. This extraordinary weight, which is only known to have been exceeded in the case of Rudolphi, is inexplicable, for Tourguenief, although tall, was not of exceptionally high stature. The brain is said to have been remarkably symmetrical, and distinguished by the extreme amplitude of the convolutions. According to generally accepted views, however, symmetry of the circonvolutions is not a favourable cerebral characteristic.

AN Anthropological Society has been founded at Bordeaux with Dr. Azam as president, and Dr. Testut as vice-president; both being members of the Faculty of Medicine of Bordeaux.

A SPECIAL commission has been established by the French Government to investigate the several processes proposed as a cure for phylloxera. It was stated officially at the last meeting of this body that every suggestion had proved abortive.

KING OSCAR of Sweden has personally conferred upon Mr. Carl Bock the Order of St. Olaf.

"IN our issue of December 14," *Science* states, "we published an article on 'The Signal-Service and Standard Time,' criticising the action of the chief signal-officer in not adopting the new standards of time at signal-service stations. We have since learned that our criticism was not well founded, as the information upon which it was based gave an incomplete idea of the position of the service in this matter. It is true that the observers of the service are still governed by the local times of their respective stations; but this is only a temporary arrangement, and will be changed as soon as possible. The reason of the delay is this: the international observation, which is taken at many stations of observation throughout the whole world, is made at 7 a.m., Washington time. It is proposed to make this observation eight minutes earlier, or at 7 a.m. of the time of the 75th meridian, which is exactly Greenwich noon; but, before this change can be made, the cooperating weather-services and numerous independent observers must first be notified, and their consent obtained. Correspondence has already been begun, and a circular letter sent to all who co-

operate in the international work asking consent to the proposed change. Favourable replies are being received; and there is little doubt that the change will be made, probably Jan. 1, 1885. It should be remembered that the international observation is made largely by observers who kindly cooperate with the chief signal officer, but who are not under his orders: a change of this kind cannot, therefore, be summarily ordered, but must be made by mutual consent."

THE Commissioners on Technical Education have now practically concluded their labours, and are likely to have only one more meeting to formally sign their Report, the greater part of which is in type. It will consist of at least five octavo volumes, it being found impracticable, even after careful consideration, to bring the mass of evidence and information within smaller compass. It is stated that any *résumé* of the series of conclusions and recommendations at which the Commission have arrived would not be useful or fully intelligible to the public without the explanatory details with which they will be accompanied. It is, however, hoped that the complete Report may be presented soon enough to permit of the House of Commons proceeding during the present session with such legislation, based upon the recommendations, as may be thought necessary. Meantime it is understood that technical training will form an important part of the measures of which the Government and Mr. A. O'Connor have given notice with regard to education in Ireland.

MESSRS. W. EAGLE CLARKE and W. DENISON ROEBUCK, Leeds, are preparing a supplement to their "Handbook of the Vertebrate Fauna of Yorkshire," and would be glad to have notes of additions or corrections to that work, or notices of the occurrence of any species of quadrupeds, birds, reptiles, or fishes in Yorkshire which their friends may be pleased to communicate. As they wish to publish in the April magazines, it is hoped that the desired information may be sent in immediately. Communications may be addressed to No. 9, Commercial Buildings, Park Row, Leeds.

AT the Royal Institution Prof. Tyndall will begin a course of six lectures on "The Older Electricity—its Phenomena and Investigators," on Tuesday next (February 28), illustrated by experiments; and Capt. Abney, R.E., will begin a course of six lectures on "Photographic Action, considered as the Work of Radiation," on Saturday (March 1). Prof. Hughes will give a discourse on Friday evening next, on "The Theory of Magnetism," illustrated by experiments.

WE have already referred to the International Ornithological Congress which is proposed to be held in Vienna on April 16–23, under the protectorate of the Crown Prince Rudolf. It is now announced that arrangements are in progress for an International Ornithological Exhibition, which is to precede the Congress, and which will occupy from April 4–14. Single specimens and collections of living birds of all kinds, including domestic birds; all apparatus serving for the protection, cultivation, breeding, and conveyance of birds; implements used in bird catching and bird shooting, falconry, carrier-pigeon-post; aviaries, and bird cages; scientific objects and products which originate in or refer to the feathered world, will all be included in the programme of the Exhibition. All details will be furnished to intending exhibitors or partakers in the Congress by the Secretary of the Vienna Ornithological Society, Dr. Gustav von Hayek, III. Marokkanergasse 3 Vienna. The main subjects to be discussed at the Congress are—(1) An international law relating to the better protection of birds; (2) the establishment of a system of ornithological observing stations all over the inhabited globe; and (3) investigations concerning the origin of the domestic fowl, and measures for the amelioration of the cultivation and breeding of domestic birds generally.

THE additions to the Zoological Society's Gardens during the past week include a Macaque Monkey (*Macacus cynomolgus* ♂) from India, presented by Miss Furniss; two Common Roe (*Capreolus caprea* ♀ ♀) from Dorsetshire, presented by Messrs. Charles Hambro and J. C. Manuel Pleydell; a Passerine Owl (*Glaucidium passerinum*), European, presented by Mr. G. R. Lake; a Naked-necked Iguana (*Iguana delicatissima*), a Banded Basilisk (*Basiliscus vittatus*) from Nicaragua, presented by Mr. Albert Vidler; two Prairie Marmots (*Cynomys ludovicianus*) from North America, a Shaw's Gerbill (*Gerbillus shawii*) from North Africa, a Military Macaw (*Ara militaris*) from South America, two Iceland Falcons (*Hierofalco islandus*) from Sweden, deposited; a Red-eared Monkey (*Cercopithecus erythrotis* ♀) from Fernando Po, two Slow Loris (*Nycticebus tardigradus*) from the Malay Countries, a Red-eyed Ground Finch (*Pipilo erythrophthalmus*) from South America, an Eyebrowed Weaver Bird (*Hyphantornis superciliosus*) from West Africa, four Asiatic Quails (*Perdula asiatica* ♂ ♂ ♀ ♀) from India, purchased.

OUR ASTRONOMICAL COLUMN

AUSTRALIAN OBSERVATORIES.—The eighteenth Annual Report of the Director of the Observatory at Melbourne to the Board of Visitors (who in their turn report to the Governor of Victoria) has been issued. The new transit-circle was expected in a short time, and would find the new circle room ready to receive it, but the instrument which had been in use for twenty years continued to give excellent and trustworthy results; nevertheless each year had forced upon Mr. Ellery the necessity of greater optical scope for the meridian work. The inevitable loss of reflective power in the great telescope increases a little year by year, but does not yet sensibly affect the work upon which it is employed. Indeed, Mr. Ellery says, "Some photographs of faint objects obtained lately are clear evidence of the immense light-gathering power it still possesses, and of the trivial loss occasioned so far by the slight tarnish apparent." The instrument had not been kept quite so closely to its special work—the revision of the southern nebulae—as before, owing to the number of nights occupied with the great comet and in experimenting in celestial photography. Among the subjects of observation Mr. Ellery refers to the transit of Venus, the Port Darwin Expedition for determination of longitude of Australian observatories, and measures of differences of declination of the minor planets *Sappho* and *Victoria* for determination of the solar parallax, according to the scheme arranged by Mr. Gill. The great comet of 1882 was kept in view for 250 days, or until April 26. A large portion of the work connected with the telegraphic determination of the longitude of Australian observatories from Greenwich fell upon the Melbourne establishment, which is now assumed to be in longitude 9h. 39m. 53.37s. E., subject perhaps to some very small correction. As soon as the new transit-circle was properly adjusted, it was Mr. Ellery's intention to devote it to the revision of a rather large catalogue of stars at the request of the "Astronomische Gesellschaft," besides its more special work. The great telescope would be applied more exclusively to the continuation of the revision of Sir John Herschel's nebulae, several of which, by the way, the Melbourne observers have not been able to find.

Mr. H. C. Russell sends us an historical account of the Observatory at Sydney and of the observations which preceded the erection of the present one in that colony. With the details of the actual observatory the reader will be probably acquainted through the volumes of results which have been issued therefrom; that for 1877–78 contains a general view of the building; but Mr. Russell mentions circumstances attending the erection of the first observatory on Australian soil which are perhaps little known. He extracts from the "History of New South Wales," by Col. Collins, the following note:—"Among the buildings that were undertaken shortly after our arrival [that of the first colonists in 1788] must be mentioned an observatory which was marked out on the western point of the cove, to which the astronomical instruments were sent, which had been sent out by the Board of Longitude for the purpose of observing the comet which was expected to be seen about the end of this year. The construction of this building was placed under the direction of Lieut. Dawes, of the Marines, who, having made